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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,719	03/19/2001	Katsuaki Abe	1743/179	9475

7590

06/04/2003

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EXAMINER

JOHNSTON, PHILLIP A

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/811,719

Applicant(s)

ABE ET AL.

Examiner

Phillip A Johnston

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2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on the amendment filed on 3/27/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Detailed Action***

1. The objection to the Specification is withdrawn.

***Claims Rejection – 35 U.S.C. 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 2-7 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,259,960 to Inokuchi.

4. Claim 1 (amended) and Claim 8 (newly added) are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,259,960 to Inokuchi.

Regarding Claim 1, Inokuchi (960) discloses that the review SEM can automatically move the selected defects into a review position according to information about the positions of the defects to be reviewed, the information being contained in the preliminary inspection information. The dimensions of inspected parts taken in the direction of thickness can be automatically calculated. The deviation of the center

position of a defect in the review position from the center of the microscope image is measured. The defect can be automatically moved into the center of the microscope image. Column 6, line 45-59.

Inokuchi (960), also discloses that when a wafer is inspected for defects, preliminary inspection information about the inspected wafer is read into the review SEM from the DIFS server 3 via the engineering workstation, the preliminary inspection information being obtained by inspections performed by the foreign material-inspecting apparatus 1 and the defect-inspecting apparatus. Then, the review SEM selects desired foreign material or defect and moves the sample stage into a position specified by the preliminary inspection information. See Column 18, line 11-21.

Inokuchi (960) further describes the SEM controller as being made of a computer having a CPU, a ROM, a RAM, I/O, etc. The display device D, a memory Me, a keyboard K, etc. are connected with the SEM controller. The cassette 13 consisting of the components shown in FIGS. 11 and 12, a device for transporting wafers, and the components of the review body are connected with the SEM controller. The SEM controller and the engineering workstation (EWS) interfaced to the SEM controller perform various kinds of processing in accordance with a program loaded in the memory in response to input signals to achieve the functions of the means shown in FIGS. 11 and 12. In FIG. 13, the engineering workstation, the foreign material-detecting apparatus 1, the defect-inspecting apparatus 2, the DIFS server 3, etc. are composed of a computer with which the display device D, memory Me, keyboard K,

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etc. are connected. They carry out various kinds of processing in accordance with a program loaded in the memory of the computer. See Column 27, line 51-67, and Column 28, line 1-4.

Inokuchi (960) still further discloses an electron microscope part inspecting system with a function that adjusts the SEM when the defect image deviates from the field of view. For example, X- and Y-coordinates of the defect on the preliminary inspection equipment (1, 2) may deviate from the X- and Y-coordinates on the review SEM, because of the detection accuracy of the preliminary inspection equipment (1, 2), the accuracy of the position of the sample stage, or the accuracy of the position of the stage of the review SEM. When this occurs the automatic centering means C11 brings the defect into the screen center by adjusting at least one of automatic brightness adjustment, automatic contrast adjustment, and automatic focusing adjustment of the SEM. See Column 32, line 57-66, and Column 33, line 1-3.

It is implied herein, that since the Inokuchi (960) invention has a means of either manually or automatically moving the field of view of the electron microscope, a cursor or keyboard provides a "pointing device having a switch which moves said field of view of the electron microscope to a position which is pointed to by a pointer on said display, and a function of changing said field of view displayed on said display according to said moving of said field of view pointed to by said switch", as recited in amended Claim 1.

Regarding new Claim 8, Inokuchi (960) as applied to amended Claim 1 above, discloses a defect image filing system (DIFS) that is a computer terminal connected

with the network N can be variously searched for preliminary inspection information, defect images, information about defects, information about x-ray analysis, information about tests, and data and process information obtained from other testing devices. The DIFS can display the contents or the results of summations in the form of table, graph, image, wafer map, and so on. Also, this filing system is able to find the correlations among various kinds of information, perform statistical processing, and image processing. See Column 19, line 25-36.

Inokuchi (960) also discloses an electron microscope part inspecting system wherein, in process flow step 167, some foreign materials spaced from each other most remotely are selected. The field of view is moved into the point where the foreign material exists. The coordinates of the center of each foreign material are found. The misalignment is corrected to minimize the positional deviation. See Column 63, line 28-33.

Inokuchi (960) further discloses an electron microscope part inspecting system that utilizes a shape monitored, image similar, image seeking means G32, which searches the database for images similar to the SEM image (shape-monitored image) of a shape-monitored portion and displays the discovered images. Within this function, the image database of the DIFS server 3 is searched for shape image data having the same magnification and center coordinates lying in a tolerable range (generally, where the stage error is in a tolerable range), using the magnification of the image and the coordinates of the center of the image as keywords. The results of the search are entered in a list S that is an array of candidate data items. If the set S

contains members or elements, the following operations are executed. If no members are present, nothing is searched for and thus the search for similar images is ended.

See Column 51, line 33-48.

Inokuchi (960) still further discloses an electron microscope part inspecting system that has a an automatic centering means (C11) which includes a defect center position deviation amount-measuring means and a defect-moving means for moving the defect into the center position. The defect center position deviation amount-measuring means measures the deviation of the center of the defect from the center of the microscope image after the defect has been moved into the review position. The defect-moving means moves the defect an amount equal to the measured deviation so that the defect is brought into the center of the microscope image. See Column 10, line 35-43.

5. Applicant's arguments filed 3-27-2003 have been fully considered but they are not persuasive.

Argument 1.

Applicant states that "the Examiner contends that there is a description of automatically moving a defect to the center of the microscope image, column 6, lines 45-68. However, referring to Figs. 16, 18, 19, 74, 75 and 76 etc., these simply show

how to move the defects that existed from the beginning in the field of view of the SEM to the center of the microscope image. This is different from the present invention in which a defect, which did not exist in the field of view of the SEM from the beginning, is moved to the center of the microscope image. Thus, the object of the present invention is quite different from Inokuchi."

The applicant is respectfully directed to Column 18, line 11-21 in Inokuchi (960), which states; that when a wafer is inspected for defects, preliminary inspection information about the inspected wafer is read into the review SEM from the DIFS server 3 via the engineering workstation, the preliminary inspection information being obtained by inspections performed by the foreign material-inspecting apparatus 1 and the defect-inspecting apparatus. Then, the review SEM selects desired foreign material or defect and moves the sample stage into a position specified by the preliminary inspection information.

The applicant is also respectfully directed to Column 74, line 42-48 in Inokuchi (960) where it is stated, a selected defect can be automatically moved into the review position by moving the XY-table (56+63) by means of the automatic defect point moving means according to positional information contained in the preliminary inspection information. In consequence, the amount of work that the operator must perform in operating the review SEM can be reduced.

The examiner has interpreted from the Inokuchi (960) references above that defects outside the field of view of the SEM can be brought into the field of view of the



SEM, which is equivalent to "moving a defect which did not exist in the field of view of the SEM from the beginning, into the field of view", as recited in Argument 1.

Argument 2.

Applicant also states, that "Furthermore, although Inokuchi shows displaying a wafer map etc., there is no description of displaying both of the following:

(a) the position of the observing field of view of the SEM based on coordinate information of the fault or defects stored in a memory device, and (b) the observing field of view pointed to by the pointing device. In this regard, Inokuchi simply shows only moving the observing field of view of the SEM by using a cursor or keyboard."

The applicant is respectfully directed to Column 4, line 3-10, which states; When an image shown in FIG. 74A is displayed, the operator moves the center of a crisscross cursor Dk into the center of the foreign material or defect displayed together with the cursor, using a mouse. Then, he clicks on the left button. The sample stage (not shown) moves a distance corresponding to the amount of movement of the cursor Dk. As a result, the foreign material or defect moves into the center of the viewing screen of the display device D, as shown in FIG. 74B.

The applicant is also respectfully directed to Column 1, line 25-47 in Inokuchi (960), which states; measuring means C16 measures various sizes (such as the lengths taken along the X- and Y-axes, the area, and the height of the defect portion) of the defect image (review image) displayed on the display device D of the review SEM. In the manual mode, a portion of the displayed review image to be measured is

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specified within the XY-coordinate system with a mouse. Then, a "measurement button" is depressed. The various dimensions of the measured portion are automatically measured.

The applicant is further respectfully directed to Column 74, line 42-48 in Inokuchi (960) where it is stated, a selected defect can be automatically moved into the review position by moving the XY-table (56+63) by means of the automatic defect point moving means according to positional information contained in the preliminary inspection information. In consequence, the amount of work that the operator must perform in operating the review SEM can be reduced.

The examiner has interpreted from the Inokuchi (960) references above that the SEM field of view can be positioned at any point selected, either manually or automatically, within the XY-coordinate system which has been previously stored in the DIF, and is equivalent to "(a) the position of the observing field of view of the SEM based on coordinate information of the fault or defects stored in a memory device, and (b) the observing field of view pointed to by the pointing device", as recited in Argument 2, above.

### ***Conclusion***

6. The Amendment filed on 1-03-2003 under 37 CFR 1.131 has been considered but is ineffective to overcome the Inokuchi (960) references.

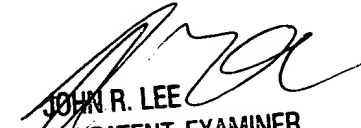
**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip A Johnston whose telephone number is 305 7022. The examiner can normally be reached on 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 703 308 4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9318 for regular communications and 703 872 9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800